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Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Keisha Douglas

Timestamp: [year=2009; month=1; day=5; hr=16; min=19; sec=49; ms=26; ]

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## Validated By CRFValidator v 1.0.3

Application No: 10620787 Version No: 3.0

Input Set:

Output Set:

**Started:** 2008-12-18 20:35:11.391 **Finished:** 2008-12-18 20:35:16.523

Elapsed: 0 hr(s) 0 min(s) 5 sec(s) 132 ms

Total Warnings: 8
Total Errors: 0

No. of SeqIDs Defined: 34

Actual SeqID Count: 34

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## SEQUENCE LISTING

<110>	Simard, John Simms, John J. Qiu, Zhiyong	
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Cys As 50	n Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln 55 60	
Leu As	p Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr 70 75 80	
Pro Gl	u Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn 85 90 95	
Ile Gl	n Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val	

100 105 110

Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn Lys Leu Lys Ile 115 120 125 Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro Gly Ser Pro Thr 135 140 130 Asn Leu Glu Phe Ile Asn Thr Gly Ser Ser Lys Gly Asn Cys Ala Ile 150 155 160 Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr Gln Ile Ala Pro 165 170 Lys Gln Val Ala Gly Thr Gly Val Gln Phe Tyr Met Ile Val Ile Gly 180 185 190 Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala Lys Arg Met Leu 200 195 Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu Ala Asn Lys Glu 210 215 220 Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro 230 235 Met Val Ile Ala Thr Thr Asp Met Gln Asn 245 250 <210> 2 <211> 250 <212> PRT <213> Vaccinia virus <400> 2 Met Gly Ala Ala Ser Ile Gln Thr Thr Val Asn Thr Leu Ser Glu 10 Arg Ile Ser Ser Lys Leu Glu Glu Glu Ala Asn Ala Ser Ala Gln Thr 20 25 30

Cys Asn Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln 50 55

Lys Cys Asp Ile Glu Ile Gly Asn Phe Tyr Ile Arg Gln Asn His Gly 40 45

35

Leu Asp Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr 65 70 Pro Glu Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn 90 Ile Gln Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val 100 105 110 Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn Lys Leu Lys Ile 115 120 125 Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro Gly Ser Pro Thr 130 135 140 Asn Leu Glu Phe Ile Asn Thr Gly Ser Ser Lys Gly Asn Cys Ala Ile 145 150 155 Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr Gln Ile Ala Pro 165 170 Arg Gln Val Ala Gly Thr Gly Val Gln Phe Tyr Met Ile Val Ile Gly 185 190 180 Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala Lys Arg Met Leu 195 200 205 Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu Ala Asn Lys Glu 210 215 220 Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro 225 230 235 240

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Arg Ile Ser	Ser Lys 20	Leu Glu	Gln Glu 25	ı Ala Asn	Ala Se	r Ala 30	Gln	Thr
Lys Cys Asp 35	Ile Glu	Ile Gly	Asn Phe	e Tyr Ile	Arg Gl	n Asn	His	Gly
Cys Asn Leu 50	Thr Val	Lys Asn 55	Met Cys	s Ser Ala	Asp Al	a Asp	Ala	Gln
Leu Asp Ala 65	Val Leu	Ser Ala 70	Ala Thr	Glu Thr	Tyr Se	r Gly	Leu	Thr 80
Pro Glu Gln	Lys Ala 85	Tyr Val	Pro Ala	Met Phe	Thr Al	a Ala	Leu 95	Asn
Ile Gln Thr	Ser Val	Asn Thr	Val Val		Phe Gl	a Asn 110	Tyr	Val
Lys Gln Thr 115	Cys Asn	Ser Ser	Ala Val	. Val Asp	Asn Ly 12		Lys	Ile
Gln Asn Val 130	Ile Ile	Asp Glu 135	Cys Tyr	Gly Ala	Pro Gl	y Ser	Pro	Thr
Asn Leu Glu 145	Phe Ile	Asn Thr 150	Gly Ser	Ser Lys 155	_	n Cys	Ala	Ile 160
Lys Ala Leu	Met Gln 165	Leu Thr	Thr Lys	Ala Thr	Thr Gl	n Ile	Ala 175	Pro
Arg Gln Val	Ala Gly 180	Thr Gly	Val Glr 185		Met Il	9 Val	Ile	Gly
Val Ile Ile 195	Leu Ala	Ala Leu	Phe Met	Tyr Tyr	Ala Ly 20	_	Met	Leu
Phe Thr Ser 210	Thr Asn	Asp Lys 215	Ile Lys	s Leu Ile	Leu Al	a Asn	Lys	Glu

Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe Arg Thr Ser Pro

225 230 235 240

Met Val Ile Ala Thr Thr Asp Ile Gln Asn 245 250

<210> 4

<211> 250

<212> PRT

<213> Variola virus

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Arg Ile Ser Ser Lys Leu Glu Gln Glu Ala Asn Ala Ser Ala Gln Thr 20 25 30

Lys Cys Asp Ile Glu Ile Gly Asn Phe Tyr Ile Arg Gln Asn His Gly 35 40 45

Cys Asn Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln 50 55 60

Leu Asp Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr 65 70 75 80

Pro Glu Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn 85 90 95

Ile Gln Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val 100  $\phantom{0}$  105  $\phantom{0}$  110

Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn Lys Leu Lys Ile 115 120 125

Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro Gly Ser Pro Thr 130 135 140

Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr Gln Ile Ala Pro 165 170 175

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<213> Artificial
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1 5 10 15

Arg Ile Ser Ser Lys Leu Glu Glu Glu Ala Asn Ala Ser Ala Gln Thr 20 25 30

Lys Cys Asp Ile Glu Ile Gly Asn Phe Tyr Ile Arg Gln Asn His Gly 35 40 45

Cys Asn Leu Thr Val Lys Asn Met Cys Ser Ala Asp Ala Asp Ala Gln 50 55 60

Leu Asp Ala Val Leu Ser Ala Ala Thr Glu Thr Tyr Ser Gly Leu Thr 65 70 75 80

Pro Glu Gln Lys Ala Tyr Val Pro Ala Met Phe Thr Ala Ala Leu Asn 85 90 95

Ile Gln Thr Ser Val Asn Thr Val Val Arg Asp Phe Glu Asn Tyr Val 100 105 110

Lys Gln Thr Cys Asn Ser Ser Ala Val Val Asp Asn I 115 120 1	Lys Leu Lys Ile 125
Gln Asn Val Ile Ile Asp Glu Cys Tyr Gly Ala Pro G 130 135 140	Sly Ser Pro Thr
Asn Leu Glu Phe Ile Asn Thr Gly Ser Ser Lys Gly A	Asn Cys Ala Ile 160
Lys Ala Leu Met Gln Leu Thr Thr Lys Ala Thr Thr G	Gln Ile Ala Pro 175
Arg Gln Val Ala Gly Thr Gly Val Gln Phe Tyr Met I 180 185	Ile Val Ile Gly 190
Val Ile Ile Leu Ala Ala Leu Phe Met Tyr Tyr Ala I 195 200 2	Lys Arg Met Leu 205
Phe Thr Ser Thr Asn Asp Lys Ile Lys Leu Ile Leu A 210 215 220	Ala Asn Lys Glu
Asn Val His Trp Thr Thr Tyr Met Asp Thr Phe Phe A 225 230 235	Arg Thr Ser Pro 240
Met Val Ile Ala Thr Thr Asp Met Gln Asn 245 250	
<210> 6 <211> 110 <212> PRT <213> Vaccinia virus	
<400> 6	
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Thr Glu Phe Phe Ser Thr Lys Ala Ala Lys Lys Pro A	Asp Arg Lys Arg

Glu Gln Ile Val Lys Ala Asp Glu Asp Asp Asn Glu Glu Thr Leu Lys

45

35 40

Gln Arg Leu Thr Asn Leu Glu Lys Lys Ile Thr Asn Val Thr Thr Lys 50 55 60 Phe Glu Gln Ile Glu Lys Cys Cys Lys Arg Asn Asp Glu Val Leu Phe 70 75 Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu 85 90 95 Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu 105 <210> 7 <211> 110 <212> PRT <213> Vaccinia virus <400> 7 Met Asp Gly Thr Leu Phe Pro Gly Asp Asp Leu Ala Ile Pro Ala 5 10 15 Thr Glu Phe Phe Ser Thr Lys Ala Asp Lys Lys Pro Glu Ala Lys Arg 20 25 30 Glu Ala Ile Val Lys Ala Asp Glu Asp Asp Asn Glu Glu Thr Leu Lys 40 45 Gln Arg Leu Thr Asn Leu Glu Lys Lys Ile Thr Asn Val Thr Thr Lys 50 55 60 Phe Glu Gln Ile Glu Lys Cys Cys Lys Arg Asn Asp Glu Val Leu Phe 65 70 75 80 Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu 85 90 95

Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu
100 105 110

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<213> Variola virus

<400> 8

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Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu

85 90 95

Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu 100 105 110

<210> 10

<211> 110

<212> PRT

<213> Artificial

<220>

<223> Consensus sequence for SEQ ID NOs. 6-9

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Thr Glu Phe Phe Ser Thr Lys Ala Ala Lys Lys Pro Glu Ala Lys Arg 20 25 30

Glu Ala Ile Val Lys Ala Asp Gly Asp Asp Asn Glu Glu Thr Leu Lys
35 40 45

Gln Arg Leu Thr Asn Leu Glu Lys Lys Ile Thr Asn Val Thr Thr Lys
50 55 60

Phe Glu Gln Ile Glu Lys Cys Cys Lys Arg Asn Asp Asp Val Leu Phe 65 70 75 80

Arg Leu Glu Asn His Ala Glu Thr Leu Arg Ala Ala Met Ile Ser Leu 85 90 95

Ala Lys Lys Ile Asp Val Gln Thr Gly Arg Arg Pro Tyr Glu \$100\$ 105 110

<210> 11

<211> 185

<212> PRT

<213> Vaccinia virus

<400> 11

Met Met Thr Pro Glu Asn Asp Glu Glu Gln Thr Ser Val Phe Ser Ala 1 5 10 15

Thr Val Tyr Gly Asp Lys Ile Gln Gly Lys Asn Lys Arg Lys Arg Val

20 25 30

Ile Gly Leu Cys Ile Arg Ile Ser Met Val Ile Ser Leu Leu Ser Met 35 40 45

Ile Thr Met Ser Ala Phe Leu Ile Val Arg Leu Asn Gln Cys Met Ser 50 55 60

Ala Asn Glu Ala Ala Ile Thr Asp Ala Ala Val Ala Val Ala Ala Ala 65 70 75 80

Ser Ser Thr His Arg Lys Val Ala Ser Ser Thr Thr Gln Tyr Asp His \$85\$ 90 95

Lys Glu Ser Cys Asn Gly Leu Tyr Tyr Gln Gly Ser Cys Tyr Ile Leu 100 105 110

His Ser Asp Tyr Gln Leu Phe Ser Asp Ala Lys Ala Asn Cys Thr Ala 115 120 125

Glu Ser Ser Thr Leu Pro Asn Lys Ser Asp Val Leu Ile Thr Trp Leu 130 135 140